

*Mel
MS
at n*

What is claimed is:

1. An polymer foam using a high melt strength polypropylene blended with a copolymer and/or homopolymer polypropylene where the preferred blend would include from 20% to 60% of the high melt strength polypropylene and 80% to 40% of a copolymer and/or homopolymer.
2. A foam in claim 1 where a more preferred blend would include from 40% to 50% of the HMS PP and 60% to 50% of a copolymer and/or homopolymer.
3. A foam in claim 1 where the physical blowing agent is carbon dioxide.
4. A foam core composition structure made with polypropylene foam as in claim 1 or 2.
5. Use of a high melt strength polypropylene in blends of copolymers or homopolymers of polypropylene to produce the foam of claim 1 or foam core of claim 4.
6. A method of forming a polypropylene foam which includes use of a physical foaming agent or agents or a chemical foaming agent or agents, or both or combinations or either to produce a polypropylene foam.
7. A method of forming polypropylene foam as recited in Claim 6 which includes the two or more layered composition of a polypropylene foam.
8. A method of forming polypropylene foam as recited in Claim 6 which includes when not as a solid surface, use of a physical foaming agent or agents or a chemical foaming agent or agents, or both or combinations or either to foam the skin or skins of claim 4.

repl
by
03/14

9. A method of forming polypropylene foam as recited in Claim 6 which includes use of same, though the preferred is a different, polypropylene for both the core and the skin surface(s).

10. A method of forming polypropylene foam as recited in Claim 6 which includes use of two or three or more layer extrusion process to produce a foam or foam/solid laminate construction.

11. A method of forming polypropylene foam as recited in Claim 6 which includes use of a calendar process to produce a foam laminate construction.

12. A method of forming polypropylene foam as recited in Claim 6 which includes use of a two, three, four or more layer extrusion process to produce a foam or foam/solid laminate construction.

13. A method of forming polypropylene foam as recited in Claim 6 which includes use of a two, three, four or more layer extrusion process and a subsequent calendar process to produce a foam or foam/solid laminate construction.

14. A method of forming polypropylene foam as recited in Claim 6 which includes use of a thermoforming process to produce a desired shape end product.

15. A method of forming polypropylene foam as recited in Claim 6 which includes use of a CO2 blown polypropylene foam in food packaging and serving applications.

16. A method of forming polypropylene foam as recited in Claim 6 which includes use of a flat or annular die to produce a foam and/or foam core with or without surface layers.

Reflected
by
and 19

17. A method of forming polypropylene foam as recited in Claim 6 which includes use of recycled or scrap material in the foam core.

18. Use of food approved contact skins on top and/or bottom of the foam core of claim 4 and/or claim 17.

19. A method of forming a foamed polymer structure, comprising the steps of:
- (a) mixing a first polymer with a physical blowing agent under high pressure, to form a pre-foamed compound, and
 - (b) co-extruding the pre-foamed compound with a second polymer, said second polymer thereby forming a skin on the co-extrudate.

20. A polymer structure, comprising:
- (a) a foamed core layer of a polymer selected from the group consisting of polypropylene and polystyrene, the said layer having an first side and a second side and cells, and the said cells are filled with a gas selected from the group consisting of nitrogen and carbon dioxide, and
 - (b) a first skin layer coating the first side of the core layer.

21. A polymer structure as recited in Claim 20, wherein the structure includes a second skin layer and second skin layer coats the second side of the core layer.

22. A polymer structure as recited in Claim 20, wherein at least one skin layer is also a foamed polymer.

23. A polymer structure as recited in Claim 20, wherein the structure is cylindrical.

ref by 14

24. A polymer structure as recited in Claim 20, wherein the core is formed of a polymer with high inherent melt strength.

25. A polymer structure as recited in Claim 20, wherein the core is formed of a polymer with high stain hardening.